

AUG 12 2006

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Malhotra et al.

Title: Magnetic Recording Medium Having Novel Underlayer Structure

Serial No.: 10/761,820

Filed: January 21, 2004

Examiner: Holly C. Rickman

Art Unit: 1773

Docket No.: K2003010

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

## DECLARATION OF GERARDO BERTERO

I, Gerardo Bertero, Declare:

1. I earned my Metallurgical Engineering degree at the Catholic University of Cordoba (in Argentina) in 1986. I earned my MS degree in material science and engineering degree at Vanderbilt University in 1989. I earned my Ph.D. degree in material science and engineering at Stanford University in 1995. Since 1994, I have been employed as an engineer at Komag, Inc., specializing in the field of magnetic recording media. I have expertise in the magnetic disk industry.

2. I read and understand U.S. Patent Application 10/761,820 (the "Application") and U.S. Patent 6,830,837 ("Kanbe").

3. Kanbe states that B is added to a Cr underlayer

in order to make finer the grain size of the second underlayer. In this case, the grain size of the magnetic layer is also made finer, so that it is possible to further reduce the media noise. However, the addition of B deteriorates the crystalline structure of the underlayer simultaneously with making finer the grain size of the underlayer. Therefore, B is desirably added in an amount of 15 at % or less.

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Col. 6, lines 49-55. At col. 2, lines 52-53, Kanbe states that the boron content should not be less than 2 at. %.

4. I understand that the Examiner has alleged that Kanbe would render it obvious to provide a boron concentration greater than zero to about 1%. This is incorrect for the following reason. It is widely known that boron shrinks the grain size of Cr *when the boron concentration exceeds a value related to its solid solubility in Cr*. In other words, it is widely known that the ability of boron to shrink Cr grain size is not linear with respect to boron concentration. Rather, boron begins to have a non-negligible effect on grain size when it crosses a threshold. That threshold is a function of the solid solubility of boron in Cr.

5. Based on my work with various metallurgical alloy systems and the disk industry, one skilled in the art would believe that the above-mentioned threshold is about 2%. Kanbe's reference to a lower limit of 2% boron concentration (col. 2, lines 52-53) confirms this. One skilled in the art, reading Kanbe, would have no motive for using a boron concentration below 2%.

6. As I mentioned above, adding boron to a Cr underlayer underneath a magnetic layer to shrink the grain size is well known. This is an often-used technique in the disk industry. I am unaware of anyone who tries to add boron in an amount below 2% to a Cr underlayer. This also confirms what I have stated above.

6. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 USC 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Respectfully submitted,

  
Gerardo Bertero

Date: 8/11, 2006